

Big Four Construction Hazards: Fall Hazards



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Introduction

The following presentations have been developed in both Spanish and English for the construction industry. These presentations focus on the Big Four Construction Hazards – **falls, electrocution, caught-in and struck-by.**

All training materials will cover the four hazards seen regularly on construction sites and will focus on the methods for the recognition and the prevention of these common hazards.

Fall Hazards – Overview

A. Fall Hazards

1. Building Structures
2. Exterior Construction Areas
3. Scaffolds
4. Stairs
5. Ladders

B. Accident Prevention

1. Guardrails
2. Warning Lines
3. Personal Fall Arrest Systems
4. Floor Covers

Fall Hazards

- Falls are one of the greatest hazards on construction sites.
- This program will help you recognize common fall hazards.
- The symbols will tell you if the situation in the picture is either safe or not safe.



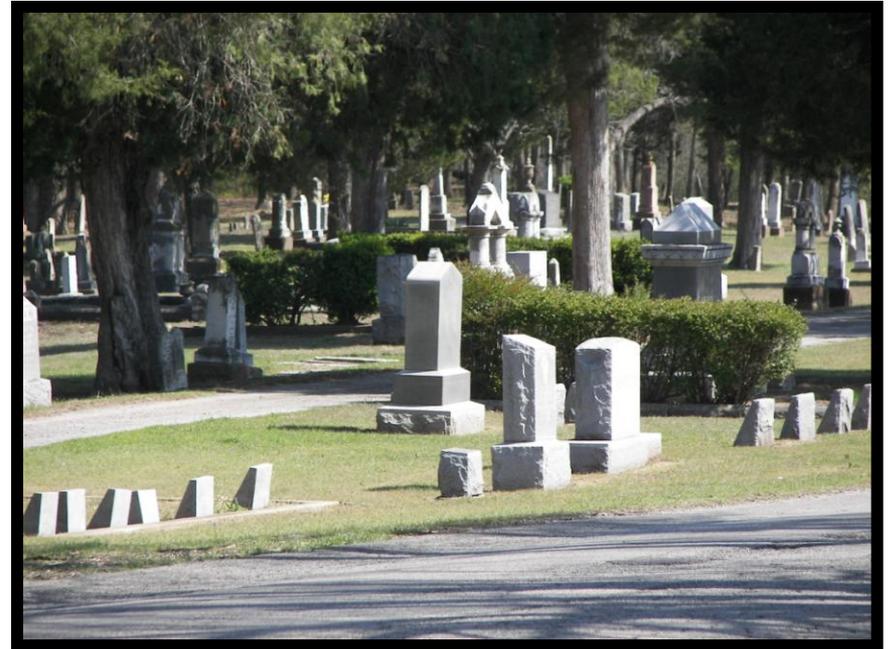
Safe



Not safe

Fall Hazards Statistics

- ❑ Each year workers die from falls. During the year 2007:
 - Total deaths from falls: 835
 - Deaths in construction: 442
 - More than 50% of deaths from falls are in construction
 - Approximately 15% of all occupational deaths are falls



Fall Hazards

❑ Fall hazards can be found on every construction site:

- Building structures
- Exterior construction areas
- Scaffolds
- Stairs
- Ladders



Building Structures

❑ Work conditions 6' or more above lower level require the use of fall protection:

- Unprotected sides, edges
- Leading edges
- Excavations
- Walking/working surfaces



Building Structures

- ❑ This worker is working 6' above the lower level without using fall protection.



Building Structures

❑ When working at a height of 6' above the lower level you must use fall protection:

- Personal fall arrest systems
- Guardrails



Building Structures

- ❑ When working at a height of 6' above the lower level you must use fall protection.
- ❑ These workers are not utilizing a personal fall arrest system.



Building Structures

- ❑ Guardrails must be maintained when working 6' above lower level.



Building Structures

- ❑ Damaged or missing guardrails must be fixed immediately.



Exterior Construction Areas

- ❑ Falls from a short distance can result in serious injury.
- ❑ All workers must be protected from falling onto sharp materials.



Exterior Construction Areas

- ❑ All open excavations and pier holes must be guarded or protected.



Scaffolds

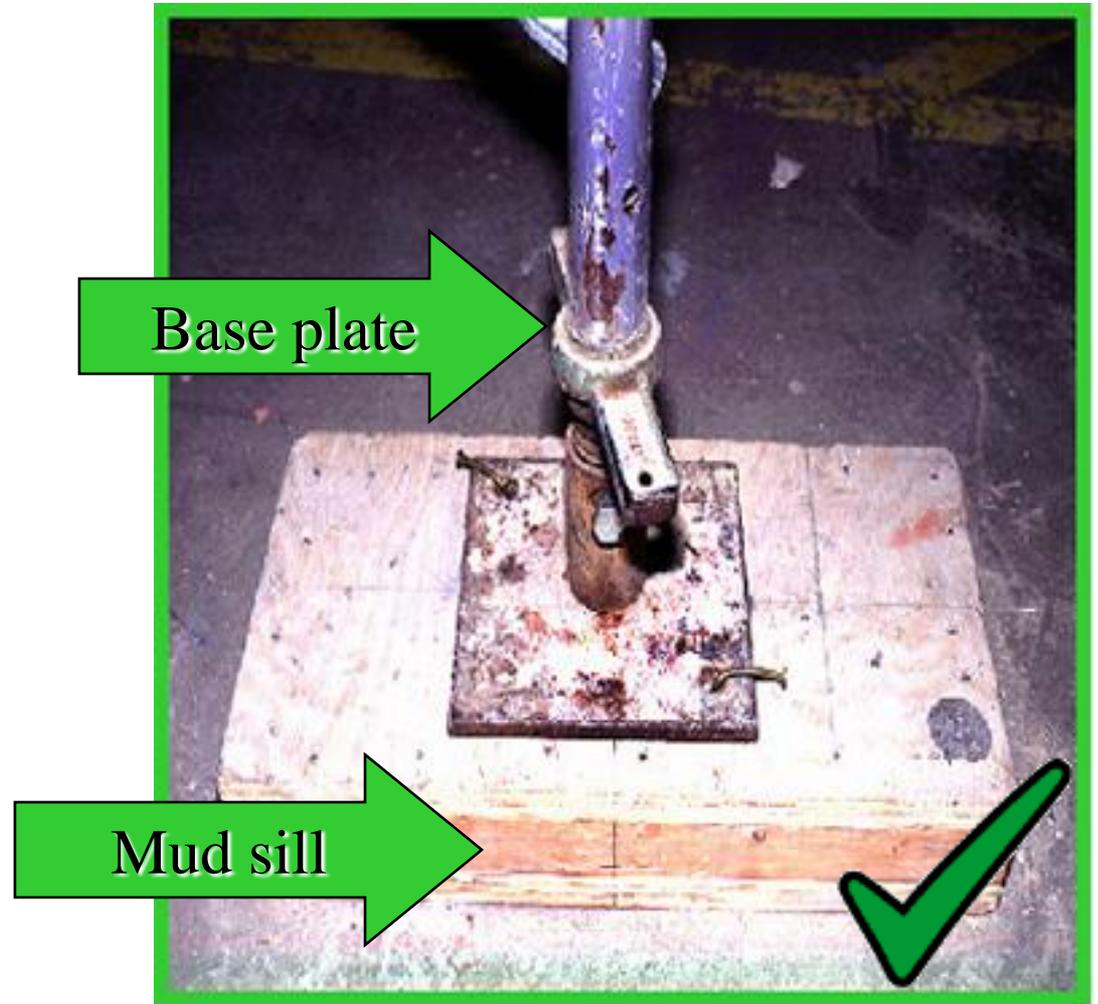
□ Scaffolds are elevated, temporary work platforms:

- Supported scaffold
- Guardrails
- Access ladders
- Powered work platforms



Scaffolds

- ❑ Scaffold bases must rest on a base plate and a mud sill.
- ❑ The base plate is designed to level and support the scaffold.



Scaffolds

- ❑ Only work from scaffolds that are properly constructed and supported.



Scaffolds

- ❑ Scaffolds used in stair wells must be properly constructed.



Scaffolds

- ❑ When working on scaffolds 6' above lower level, guardrails must be installed.



Scaffolds

- ❑ Never use scaffolds that do not have proper guardrails installed.



Scaffolds

- ❑ Scaffold platforms must be fully and properly planked.



Scaffolds

- ❑ Never stack blocks, bricks, or use ladders on top of scaffolds for extra height.



Scaffolds

- ❑ Workers must have a safe way to access the scaffold.



Scaffolds

- ❑ Never use blocks, bricks, walk boards, and other unsafe methods to access a scaffold.



Scaffolds

- ❑ Use only ladders designed for use with scaffolds.
- ❑ The ladder must be firmly secured to the scaffold.



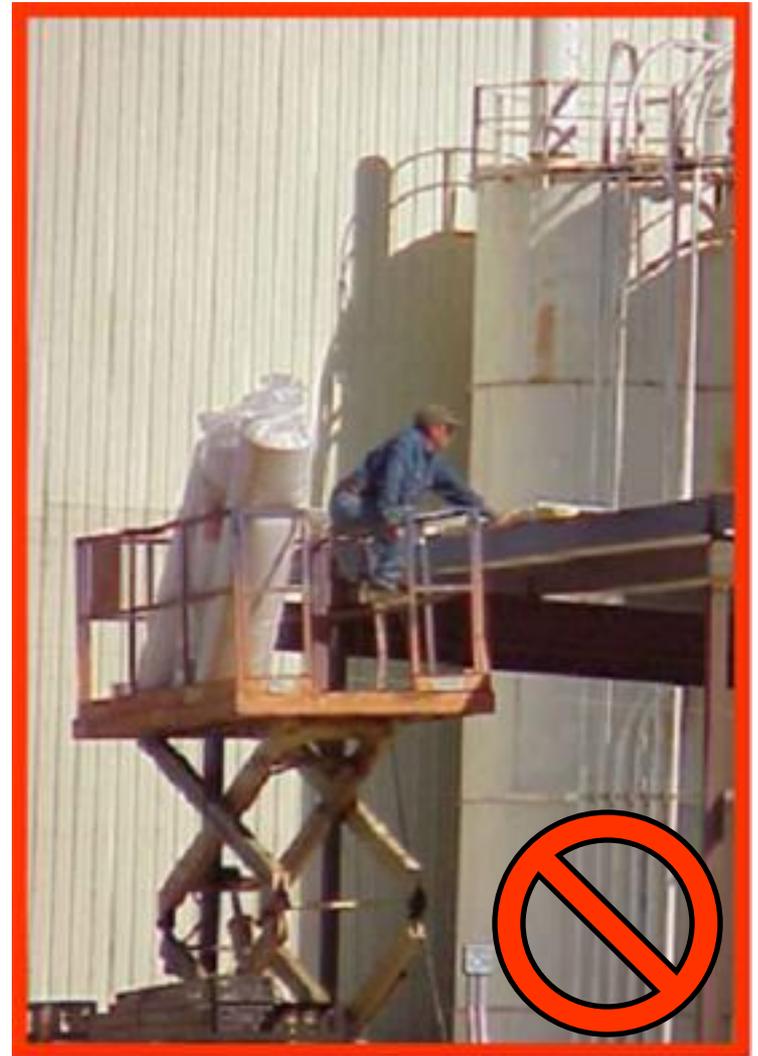
Powered Work Platforms

- ❑ Powered platforms include:
- man-baskets placed on a forklift,
 - aerial lifts, and
 - scissor lifts.



Powered Work Platforms

- ❑ Always make sure you have proper fall protection and training before using a powered platform.



Powered Work Platforms

- ❑ Only use equipment that is designed for lifting personnel.



Stairs

- ❑ Stairways must have a stair rail along each unprotected side or edge.



Stairs

- ❑ Stairs that have walls on both sides must have at least one hand rail on the right-hand side when climbing down.



Ladders

- ❑ Never use stairs that are not complete or unsafe.



Ladders

- Ladders must be inspected prior to use.
- Ladders must be kept in a good condition and safe location.



Ladders

- ❑ Do not stand on the top of a ladder.



Ladders

- ❑ Read labels on ladders for instructions to ensure proper use.



Ladders

- ❑ Always maintain good footing on a step ladder.
- ❑ Use the correct size ladder for the work that is to be done.



Ladders

❑ Always use the right equipment for the job:

- Ladders
- Lifts
- Scaffolds



Ladders

- ❑ Never straddle or sit on top of a step ladder.



Ladders

- ❑ An A-Frame ladder must be fully opened and locked into position.
- ❑ Use ladders only for their designed purpose.



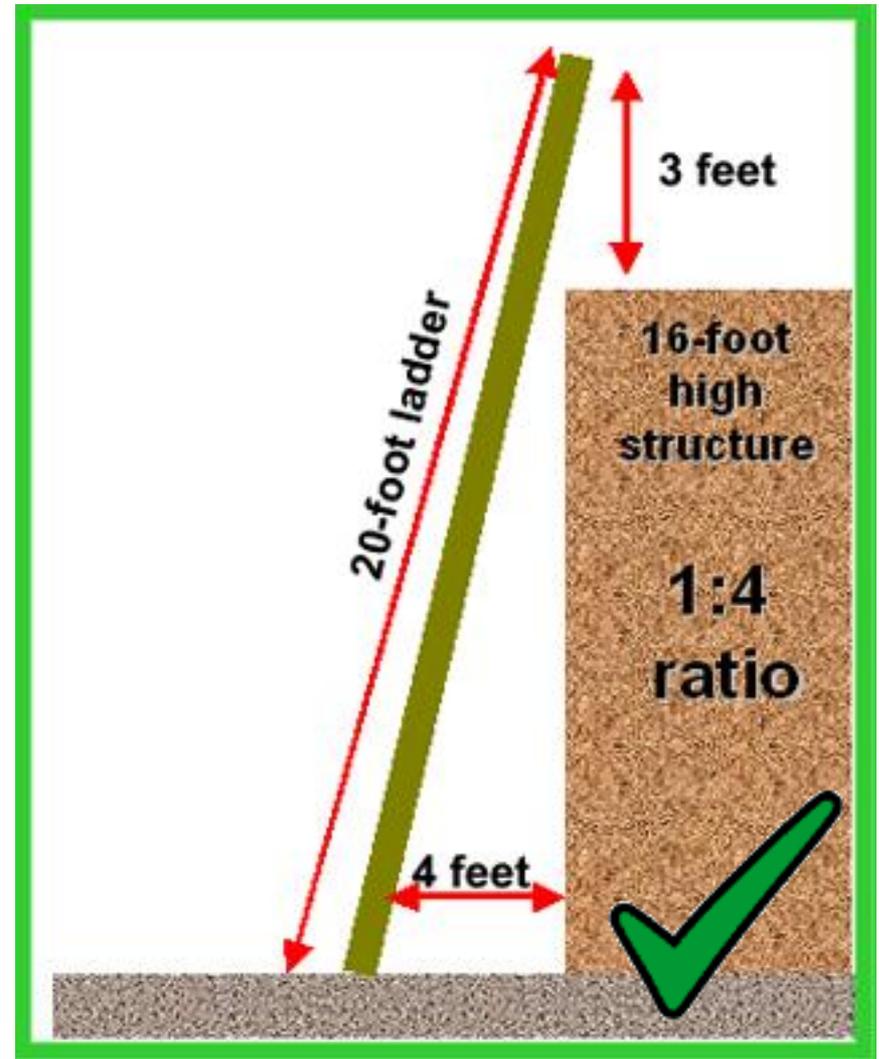
Ladders

- ❑ Only use ladders on stable and level surfaces to prevent accidental movement.



Ladders

- ❑ Ladders must be positioned at a safe angle to avoid potential fall hazards when climbing.
- ❑ Extension ladders must extend 3' over the landing for safe access.



Ladders

- When using a portable ladder for access to an upper landing surface, the side rails must extend at least 3' above the upper landing surface.



Ladders

- Proper use vs. Improper application



Ladders

- ❑ Maintain contact with the ladder using both hands to keep a safe grip.
- ❑ Face ladder when going up or down.
- ❑ Never climb a ladder while carrying any materials.



Job Made Ladders

- ❑ Job made ladders must be properly constructed:
 - Steps equally spaced
 - No missing steps or rungs
 - No sharp edges or nails sticking out



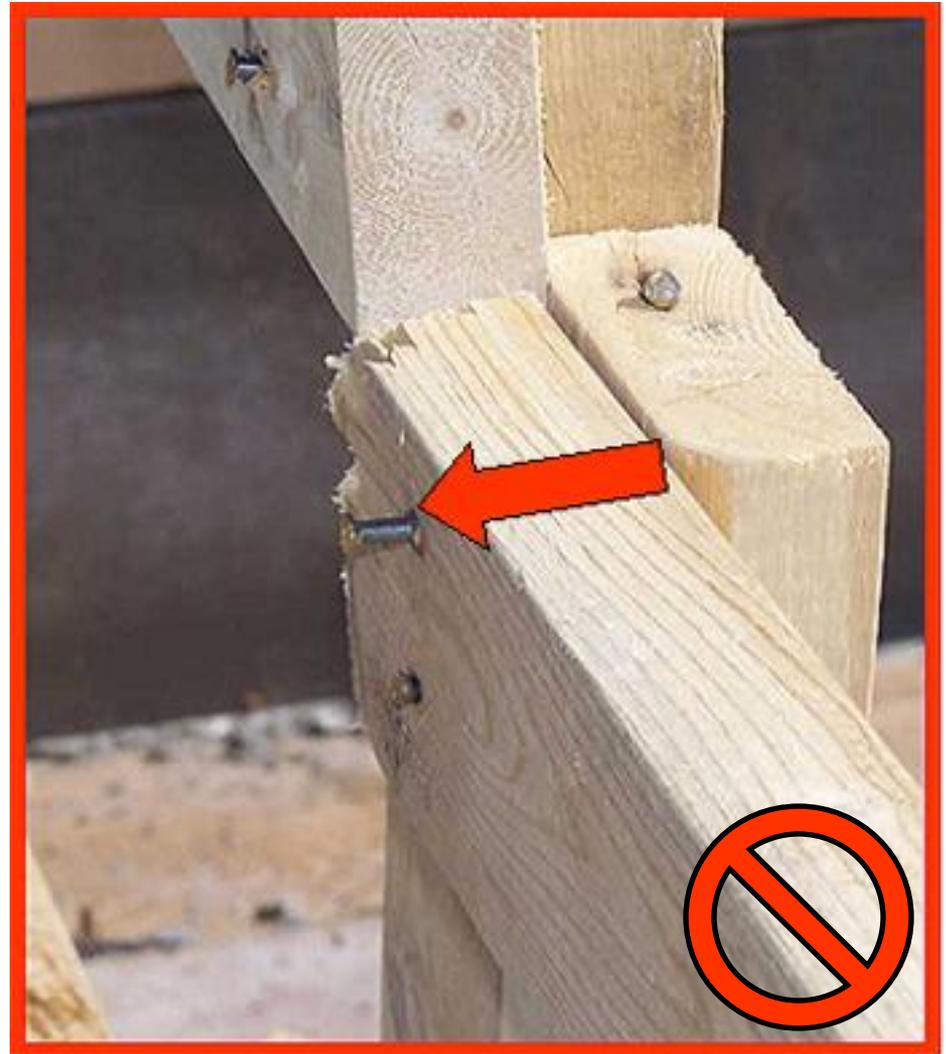
Job Made Ladders

- ❑ Never use a job made ladder that is damaged or missing steps.
- ❑ Only use a job made ladder that has been properly built.



Job Made Ladders

- ❑ Job made ladders must also be constructed so that no nails protrude or sharp edges exist.
- ❑ Nails and sharp edges can catch on clothing and cause falls.



QUIZ



- You will be presented with a specific hazard recognition question to test your understanding of this material.

Question 1

Before using a ladder, inspect it for which of the following?

A – Cracks in the frame

B – Broken or missing rungs

C – Oil, grease or other substances on the rungs

D – All of the above

Question 1

Before using a ladder, inspect it for which of the following?

The correct answer is:

D – All of the above

Question 2

Job made ladders may be used if the steps are equally spaced with no steps missing and no sharp edges or nails sticking out.

A – True

B – False

Question 2

Job made ladders may be used if the steps are equally spaced with no steps missing and no sharp edges or nails sticking out.

The correct answer is:

A - True

Question 3

When erecting scaffolding, the base plate must be placed on what?

- A – A Firm Foundation
- B – Cement Blocks
- C – Soft Dirt
- D – Wood Blocks

Question 3

When erecting scaffolding, the base plate must be placed on what?

The correct answer is:

A – A Firm Foundation

Question 4

When working on scaffolding and you need a little more height, you must do the following:

- A – Stand on a saw-horse
- B – Jump
- C – Erect another section of scaffolding
- D – Use a ladder

Question 4

When working on scaffolding and you need a little more height, you must do the following:

The correct answer is:

C – Erect another section of scaffolding

Question 5

Stairs that are incomplete and missing handrails are acceptable to use during the construction phase of the project.

A – True

B – False

Question 5

Stairs that are incomplete and missing handrails are acceptable to use during the construction phase of the project.

The correct answer is:

B – False

Accident Prevention

- ❑ A willing, positive attitude towards safety will help make a safer work environment.



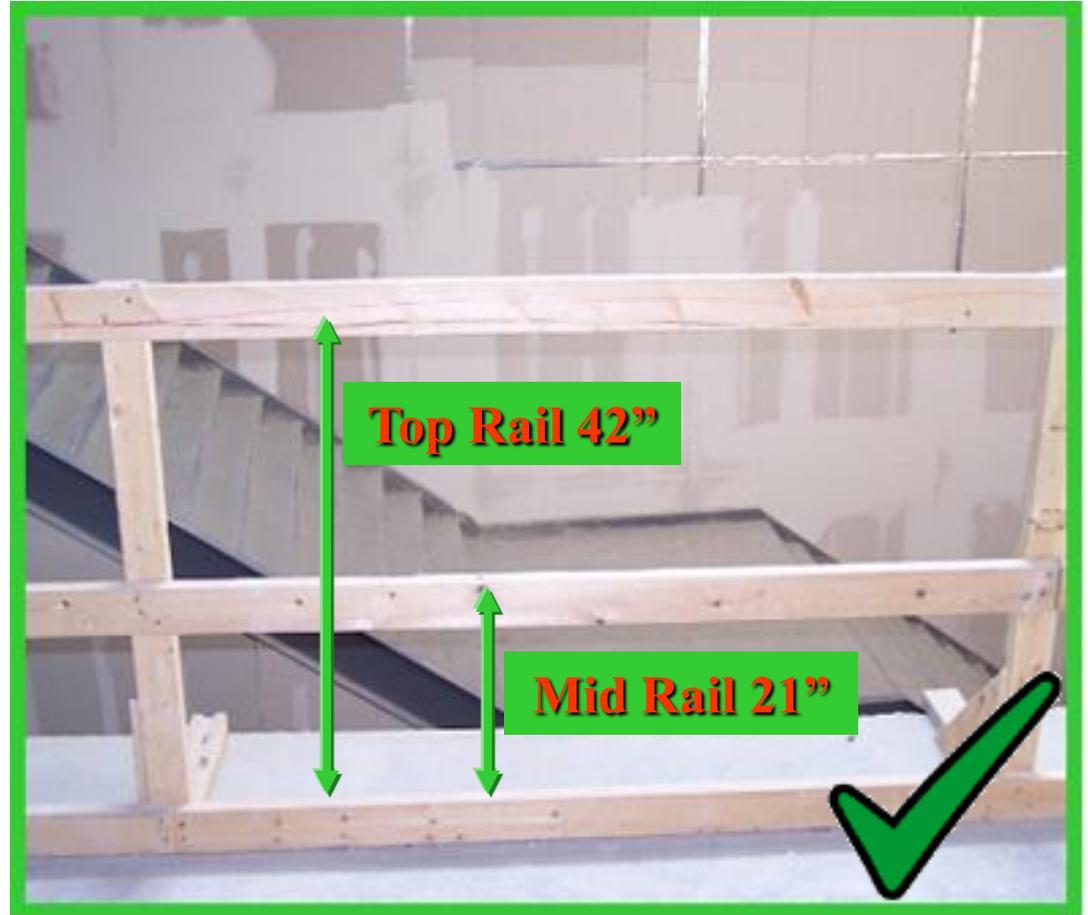
Preventing Fall Accidents

- ❑ Construction work performed at 6' or higher above a lower level requires fall protection.
- ❑ Some fall protection methods include:
 - Guardrails
 - Warning lines
 - Fall arrest systems and
 - Floor covers



Guardrails

- ❑ Guardrails must have a top rail, a mid rail and a toe board.
- ❑ The top rail must be at least 42" from the working surface.



Guardrails

- ❑ All guardrails must be constructed with a top rail and a mid rail.
- ❑ The top rail must support 200 lbs. of force downward and outward.



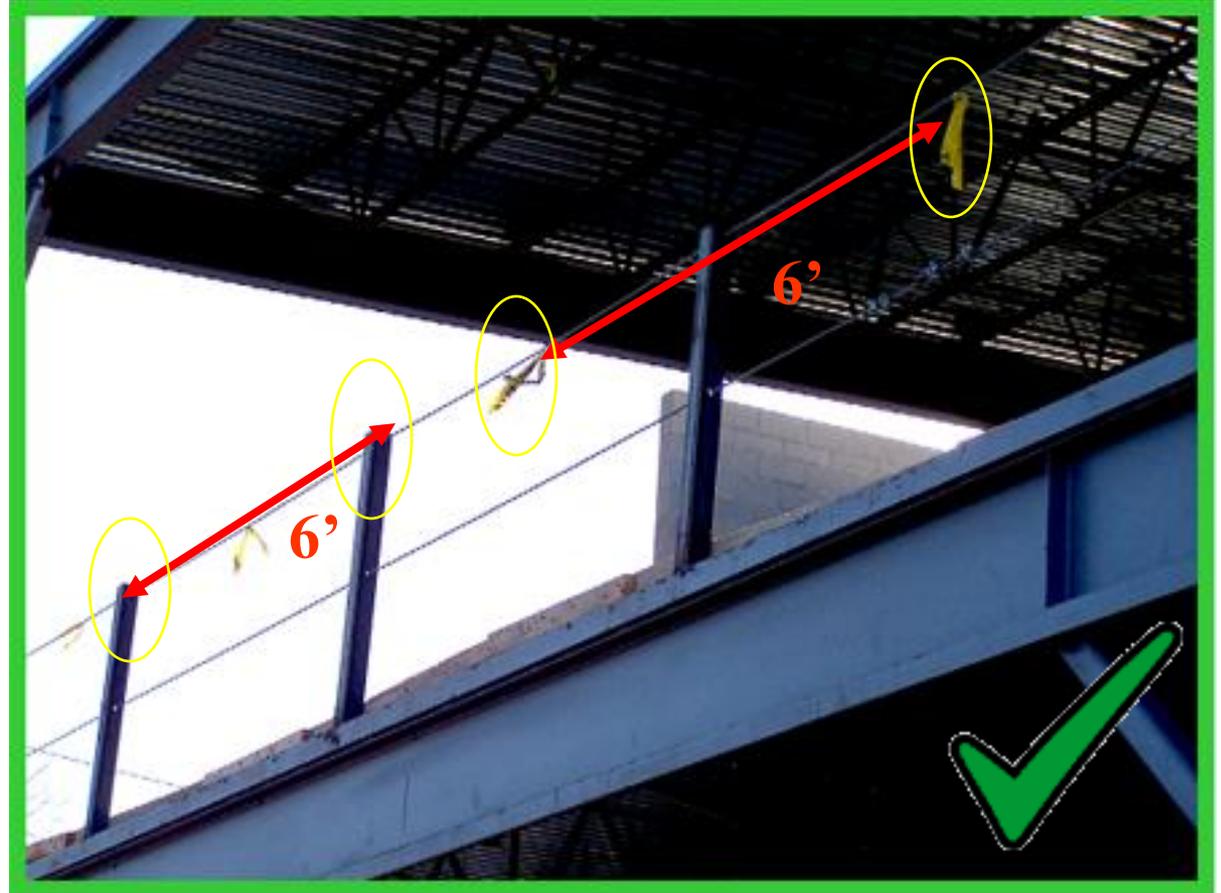
Guardrails

- ❑ Cable guardrails must meet the same rules as wood guardrails.
- ❑ The top rail must be at least 42" high and resist up to 200 lbs.



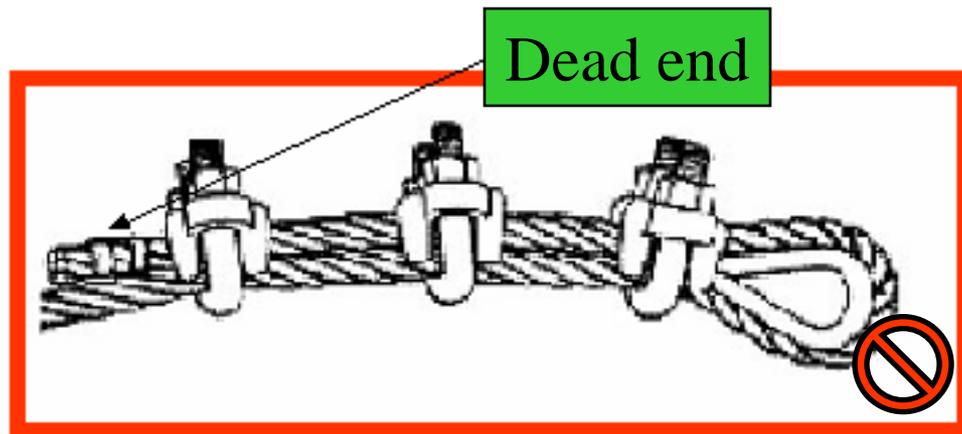
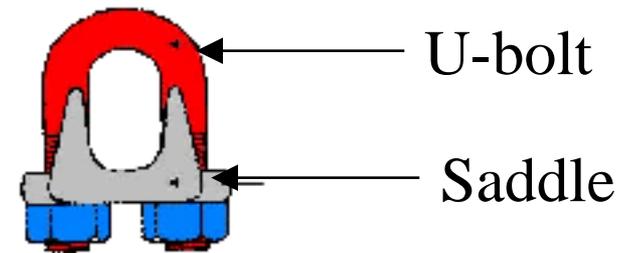
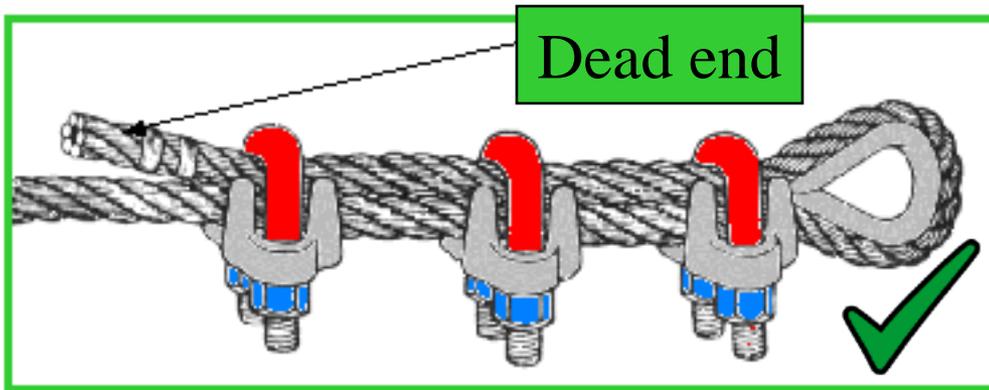
Cable Guardrails

- ❑ Steel cable guardrails must have the top rail flagged every 6 feet.



Cable Guardrails

- ❑ The clamps used for a steel cable system must be placed correctly.



Warning Lines

- ❑ Warning lines are used to keep workers away from an unsafe edge.
- ❑ The warning line must be at least 6' away from the edge.



Warning Lines

- ❑ Warning lines must withstand 16 lbs. of tipping force.
- ❑ The warning line must be at least 34" from the ground.



Warning Lines

- Warning lines must be maintained.
- Report any unsafe condition to your supervisor.



Warning Lines

- ❑ Never work in an area if the warning line has been knocked down or damaged.



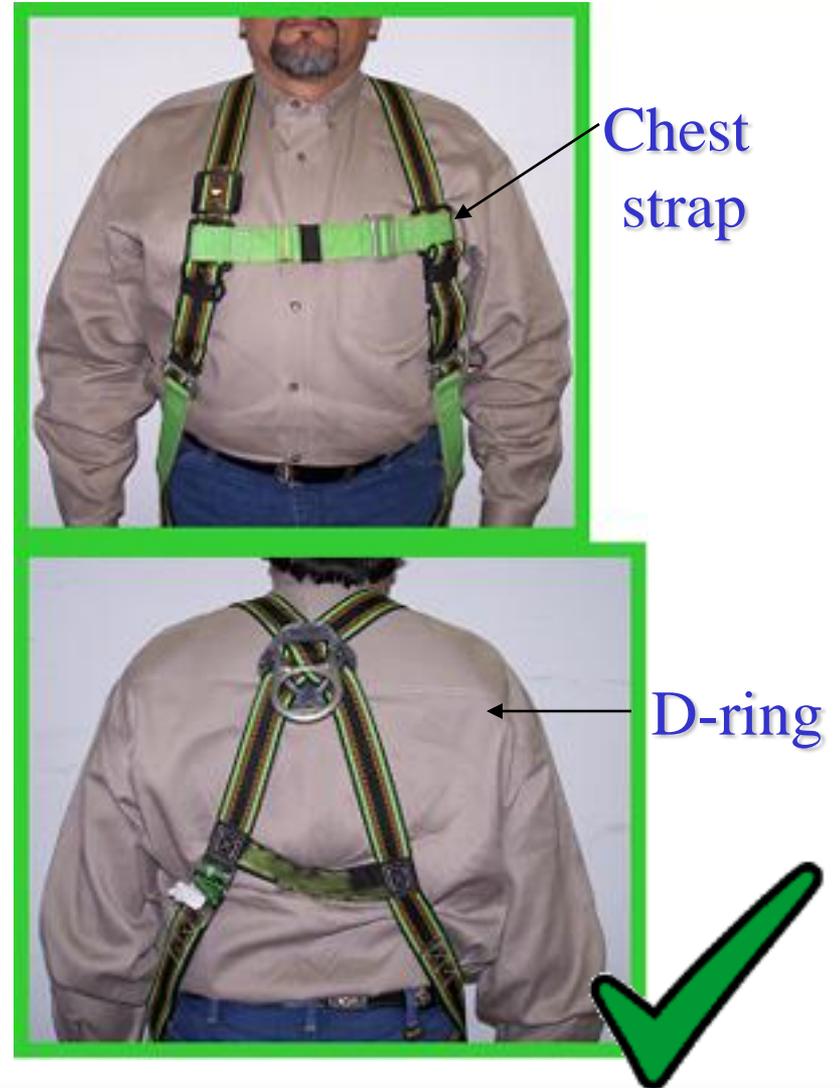
Personal Fall Arrest Systems

- The fall arrest system components are:
- body harness,
 - lanyard, and
 - anchorage point.



Personal Fall Arrest Systems

- ❑ Body harness must be worn properly.
- ❑ D-ring must rest between the shoulders and the chest strap must be secured.



Personal Fall Arrest Systems

❑ Body harness must be:

- inspected before use,
- adjusted to fit the worker, and
- free from other visible damage.



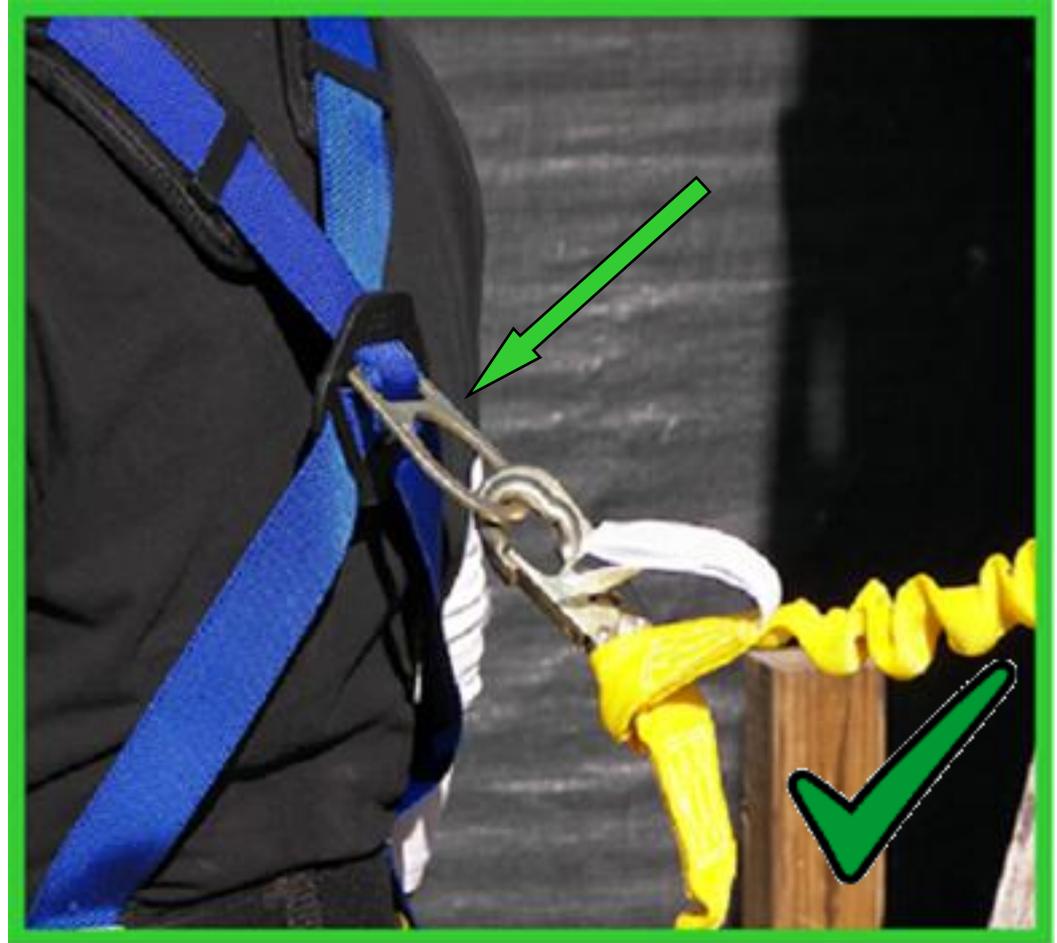
Personal Fall Arrest Systems

- ❑ Lanyards must be in good condition and free from visible damage.



Personal Fall Arrest Systems

- ❑ Lanyard must attach to the D-ring on the body harness.



Personal Fall Arrest Systems

- ❑ Never anchor or tie off to pipes, wood structures, electrical wires, or other areas not designed for anchorage points.



Personal Fall Arrest Systems

- ❑ The anchorage point is the place where you tie off to or hook to.
- ❑ The anchorage point must support the force of a person falling.



Personal Fall Arrest Systems

- ❑ A life line is used to allow a worker to stay tied off while he moves through the work area.



Personal Fall Arrest Systems

- ❑ Workers must always be tied off when working with a personal fall arrest system.



Floor Covers

- ❑ The cover must be marked to make sure everyone knows it is a safety device.



Floor Covers

- ❑ All floor holes where an employee could fall through must be covered or guarded.



Floor Covers

- ❑ Sky-lights are another form of floor holes.
- ❑ Never sit, stand, or place any materials on sky-lights.



Floor Covers

- Pier holes must be guarded or protected.
- Either a guard rail system or floor hole cover can be used.



QUIZ



- You will be presented with a specific accident prevention question to test your understanding of this material.

Question 1

While working in the construction industry, at what height is fall protection required?

A – 4 feet

B – 10 feet

C – 6 feet

D – 8 feet

Question 1

While working in the construction industry, at what height is fall protection required?

The correct answer is:

C – 6 feet

Question 2

Guardrails are designed to protect you from falling. The top rail must be _____ inches high and be able to withstand _____ pounds of force.

A – 42 / 300

B – 36 / 300

C – 42 / 200

D – 36 / 200

Question 2

Guardrails are designed to protect you from falling. The top rail must be _____ inches high and be able to withstand _____ pounds of force.

The correct answer is:

C – 42 / 200

Question 3

Guardrails can be made of wood or steel cables. When using steel cables the cable clamps must be placed:

- A – In alternating directions
- B – With the U-bolt on the dead end of the cable
- C – With the saddle on the dead end of the cable
- D – None of the above, clamps are not required

Question 3

Guardrails can be made of wood or steel cables. When using steel cables the cable clamps must be placed:

The correct answer is:

B – With the U-bolt on the dead end of the cable

Question 4

When inspecting a harness before using it, you should look for the following:

- A – Cuts/Abrasions
- B – Burns
- C – Other visible damage
- D – All the above

Question 4

When inspecting a harness before using it, you should look for the following:

The correct answer is:

D – All the above

Question 5

Floor holes can include which of the following:

- A – Pier holes, skylights and stair openings
- B – Pier holes, skylights and window openings
- C – Skylights, stair openings and doorways
- D – Skylights, stair openings and open sided floors

Question 5

Floor holes can include which of the following:

The correct answer is:

A – Pier holes, skylights and stair openings

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Big Four Construction Hazards: Fall Hazards

**This concludes the
Fall Hazards Module**

“THE END”